UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,590	12/04/2000	Inoue Yoshiaki	Q61987	3639

7590 07/02/2004

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W
Washington, DC 20037-3202

EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/727,590	YOSHIAKI, INOUE	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (US Patent 5,315,407) in view of Delabastita (US Patent 5,828,463) and Bouton (*Inside ADOBE® Photoshop® 5*, by Gary David Bouton, Barbara Mancuso Bouton, and Gary Kubicek, New Riders Publishing, copyright 1998, pages 46-49).

Claim 1 discloses a halftone dot producing apparatus. Claim 10 discloses a halftone dot producing programs storage medium storing a halftone dot producing program. Claim 1 and claim 10 both comprise the same means and are therefore discussed together.

Regarding claims 1 and 10: Sakamoto discloses a halftone dot producing apparatus (figure 13 of Sakamoto). Figure 14 of Sakamoto shows further details of said apparatus (column 6, lines 18-19 of Sakamoto).

Said apparatus comprises a phase selection section (figure 14(104,106,108); column 10, lines 48-51; and column 11, lines 3-10 of Sakamoto) for calculating a phase (Uc,Vc) (column 9, lines 26-35 of Sakamoto) between at least a first threshold matrix of said threshold matrices and a first monochromatic image represented by a multi-tone level image data to which said first threshold matrix is applied (figure 7 and column 7, lines 14-26 of Sakamoto). Each vertex comprising the halftone dot region, and thus the halftone screen, are shifted to one of the corresponding adjacent lattice points (column 7, lines 14-18 of Sakamoto). This warping is used to correct the addresses of the recording pixels (column 7, lines 22-23 of Sakamoto). The corrected addresses are then used to compare the halftone screen with the image data to determine which recording pixels are exposed (column 7, lines 23-26 of Sakamoto), which is, by definition, halftoning the original monochromatic image.

Said apparatus further comprises a phase control section (figure 14(110) of Sakamoto) for controlling a relative phase between said first threshold matrix and said first monochromatic image to implement the phase calculated by said phase selection section (column 11, lines 39-44 of Sakamoto). The coordinate correction unit (figure 14(110) of Sakamoto) performs the actual coordinate correction based upon the amount of correction that has been calculated (column 11, lines 39-44 of Sakamoto).

Said apparatus further comprises a data producing section (figure 13(32) of Sakamoto) for producing halftone data representative of a monochromatic image by applying a threshold matrix associated to multi-tone level image data representative of said monochromatic image (column 11, line 67 to column 12, line 2 of Sakamoto) with

the phase controlled by said phase control section (column 11, lines 38-44 of Sakamoto).

Sakamoto does not disclose expressly that said phase is selected; and that said data producing section produces a plurality of halftone dot data representative of a plurality of monochromatic images in which a color image is separated, by applying threshold matrices associated with multi-tone level image data representative of monochromatic images excepting said first monochromatic image, of said plurality of multi-tone level image data, to the multi-tone level image data representative of said monochromatic images excepting said first monochromatic image, of said plurality of multi-tone level image data, with a phase determined on a fixing basis.

Delabastita discloses producing a plurality of halftone dot data representative of a plurality of monochromatic images in which a color image is separated (column 14, lines 15-19 of Delabastita), by applying threshold matrices associated with the multi-tone level image data representative of said monochromatic images to the multi-tone level image data representative of said monochromatic images (column 14, lines 18-22 of Delabastita), with a phase (column 9, lines 11-13 of Delabastita) determined on a fixing basis, said fixing basis being specifically the tone of the image (figure 12-13 and column 10, lines 39-45 of Delabastita).

Sakamoto and Delabastita are combinable because they are from the same field of endeavor, namely the reduction and prevention of image artifacts. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply a threshold matrix with the phase controlled by said phase control section to the first

monochromatic multi-tone image data (such as black), as taught by Sakamoto, and apply threshold matrices to a plurality of associated monochromatic multi-tone image data (such as cyan, magenta, and yellow) with a phase determined on a fixing basis, as taught by Delabastita. The motivation for doing so would have been that each color component must be properly positioned relative to the other color components in order to print correctly (column 1, lines 24-32 of Delabastita). Therefore, if the phase is specifically controlled for one color, the phase associated with the other colors must be fixed based on that controlled phase value. Therefore, it would have been obvious to combine Delabastita with Sakamoto.

Sakamoto in view of Delabastita does not disclose expressly that said phase is selected.

Bouton discloses using a handler ("amount slider") to variably adjust image properties, as shown in figure 2.5 on page 48 of Bouton. The handler is clearly shown where the mouse pointer is adjusting the lightness of the image. Two other handlers are shown which can be used to adjust saturation and hue.

Sakamoto in view of Delabastita is combinable with Bouton because they are from the same field of endeavor, namely image data processing and presentation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust and select the phase taught by Sakamoto using an amount slider as taught by Bouton to adjust the phase value. The motivation for doing so would have been to improve the image quality (page 46, lines 4-6 of Bouton). Therefore, it would have been

obvious to combine Bouton with Sakamoto in view of Delabastita to obtain the invention as specified in claims 1 and 10.

Further regarding claim 10, Sakamoto discloses that the apparatus can be embodied as software programs stored on a computer-readable medium (column 11, lines 11-13 of Sakamoto).

Regarding claim 2: Sakamoto does not disclose expressly that said phase selection section selects any one of a plurality of phases between a phase in which a Rosette pattern of a clear center appears on a color image represented by said plurality of halftone dot image data, and a phase in which a Rosette pattern of a dot center appears on the color image represented by said plurality of halftone dot image data.

Delabastita discloses a plurality of phases between a phase in which a Rosette pattern of a clear center appears on a color image represented by said plurality of halftone dot image data (figures 2a-2c and column 7, lines 57-64 of Delabastita), and a phase in which a Rosette pattern of a dot center appears on the color image (column 7, lines 47-54 of Delabastita) represented by said plurality of halftone dot image data (column 8, lines 3-4 Delabastita). For a shadow area, a phase is used such that the dot center appears on the color image (column 7, lines 47-54 of Delabastita).

Sakamoto and Delabastita are combinable because they are from the same field of endeavor, namely the reduction and prevention of image artifacts. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to vary the Rosette pattern from clear-centered to dot-centered based on image properties, as taught by Delabastita. The motivation for doing so would have been to better

approximate the color balance of the image (column 7, lines 52-54 of Delabastita). Therefore, it would have been obvious to combine Delabastita with Sakamoto.

Sakamoto in view of Delabastita does not disclose expressly that any of said plurality of phases, and a phase in which a Rosette pattern of a dot center appears on the color image represented by said plurality of halftone dot image data, can be selected.

Bouton discloses using a handler ("amount slider") to variably adjust image properties, as shown in figure 2.5 on page 48 of Bouton. The handler is clearly shown where the mouse pointer is adjusting the lightness of the image. Two other handlers are shown which can be used to adjust saturation and hue.

Sakamoto in view of Delabastita is combinable with Bouton because they are from the same field of endeavor, namely image data processing and presentation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust and select the phase taught by Sakamoto, between a clear-centered and dot-centered Rosette pattern, as taught by Delabastita, using an amount slider as taught by Bouton to adjust the phase value. The motivation for doing so would have been to improve the image quality (page 46, lines 4-6 of Bouton). Therefore, it would have been obvious to combine Bouton with Sakamoto in view of Delabastita to obtain the invention as specified in claim 2.

Regarding claim 3: Sakamoto discloses that said phase control section (figure 14(110) of Sakamoto) corrects the U-V coordinates so that said U-V coordinates can be transformed to screen coordinates (column 11, lines 39-44 of Sakamoto). The

addresses of the recording pixels are corrected on the basis of the relative displacements (column 7, lines 21-27 of Sakamoto). Said correction therefore controls a phase (Uc,Vc) (column 11, lines 39-44 of Sakamoto) of said first threshold matrix for said first monochromatic image (column 7, lines 21-27 of Sakamoto).

Regarding claim 4: Sakamoto discloses that said phase control section (figure 14(110) of Sakamoto) corrects the U-V coordinates so that said U-V coordinates can be transformed to screen coordinates (column 11, lines 39-44 of Sakamoto). The addresses of the recording pixels are corrected on the basis of the relative displacements (column 7, lines 21-27 of Sakamoto). Said correction therefore controls a phase (Uc,Vc) (column 11, lines 39-44 of Sakamoto) of said first monochromatic image to said first threshold matrix (column 7, lines 21-27 of Sakamoto).

Regarding claim 5: Sakamoto discloses an image producing section (figure 13(23) of Sakamoto) for producing multi-tone level image data (column 10, line 61 to column 11, line 2 of Sakamoto). Comparing the image signal with the screen pattern data to generate exposure-control data (column 10, lines 61-65 of Sakamoto) is, by definition, halftoning. The image producing section (figure 13(23) of Sakamoto) uses the exposure-control data to record the halftone image (column 10, line 67 to column 11, line 2 of Sakamoto), thus creating a multi-tone level image.

Sakamoto does not disclose expressly that said image producing section produces said multi-tone level image data for evaluating a Rosette pattern; and a display section for displaying a Rosette pattern on an image represented by an

assembly of halftone dot image data obtained by applying the threshold matrices to the multi-tone level image data produced by said image producing section.

Delabastita discloses evaluating Rosette patterns (column 7, lines 47-54 of Delabastita). Rosette patterns were evaluated to determine which conditions (column 7, lines 47-49 of Delabastita) and dependencies produce better results (column 7, lines 51-54 of Delabastita). The recorder grid (figure 14(81) of Delabastita) outputs the image data (column 11, lines 52-58 of Delabastita), which therefore allows the Rosette patterns (column 11, lines 37-42 of Delabastita) to be evaluated.

Delabastita further discloses a display section (figure 14(81) of Delabastita) for displaying a Rosette pattern (column 11, lines 37-42 of Delabastita) on an image represented by an assembly of halftone dot image data obtained by applying the threshold matrices (screen function values) to the multi-tone level image data produced by said image producing section (column 11, lines 52-58 of Delabastita). The image data is output by said display section (recorder grid) (column 11, lines 52-58 of Delabastita), which includes the Rosette pattern that is on the image (column 11, lines 37-42 of Delabastita).

Sakamoto and Delabastita are combinable because they are from the same field of endeavor, namely the reduction and prevention of image artifacts. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the display to display and evaluate a Rosette pattern, as taught by Delabastita. The motivation for doing so would have been to better approximate the color balance of the

image (column 7, lines 52-54 of Delabastita). Therefore, it would have been obvious to combine Delabastita with Sakamoto to obtain the invention as specified in claim 5.

Regarding claim 6: Sakamoto discloses that said image producing section (figure 13(23) of Sakamoto) produces multi-tone level image data (column 10, line 61 to column 11, line 2 of Sakamoto).

Sakamoto does not disclose expressly that said image producing section produces multi-tone level image data representative of uniform images having uniform values throughout whole image areas as multi-tone level image data for evaluating a Rosette pattern.

Delabastita discloses multi-tone level image data (figure 10a and column 7, lines 23-26 of Delabastita) representative of uniform images having uniform values throughout whole image areas (column 9, lines 19-23 of Delabastita) as multi-tone level image data for evaluating a Rosette pattern (column 9, lines 15-19 of Delabastita), which is in accordance with the invention of Delabastita (column 7, lines 49-52 of Delabastita).

Sakamoto and Delabastita are combinable because they are from the same field of endeavor, namely the reduction and prevention of image artifacts. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the image producing section taught by Sakamoto to evaluate Rosette patterns with image having uniform values throughout whole image areas, as taught by Delabastita. The motivation for doing so would have been better approximate the color balance of the

image (column 7, lines 52-54 of Delabastita). Therefore, it would have been obvious to combine Delabastita with Sakamoto to obtain the invention as specified in claim 6.

Regarding claim 8: Sakamoto discloses a phase (Uc,Vc) (column 11, lines 39-44 of Sakamoto) between said first threshold matrix for said first monochromatic image (column 7, lines 21-27 of Sakamoto).

Sakamoto in view of Delabastita does not disclose expressly a handler for selecting a phase between said first threshold matrix for said first monochromatic image, and said phase selection section selects the phase in accordance with an operation of said handler.

Bouton discloses a handler ("amount slider") which variably adjusts image properties, as shown in figure 2.5 on page 48 of Bouton. The handler is clearly shown where the mouse pointer is adjusting the lightness of the image. Two other handlers are shown which can be used to adjust saturation and hue. Said handler, shown in figure 2.5 on page 48 of Bouton, selects value of the image property in accordance with an operation of said handler, specifically by dragging the amount slider to the desired value (page 48, lines 1-4 of Bouton).

Sakamoto in view of Delabastita is combinable with Bouton because they are from the same field of endeavor, namely image data processing and presentation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to variably adjust the phase taught by Sakamoto using the handler and the associated operations performed upon said handler, as taught by Bouton. The motivation for doing so would have been to improve the image quality (page 46, lines 4-

6 of Bouton). Therefore, it would have been obvious to combine Bouton with Sakamoto in view of Delabastita to obtain the invention as specified in claim 8.

4. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (US Patent 5,315,407) in view of Delabastita (US Patent 5,828,463), Bouton (*Inside ADOBE® Photoshop® 5*, by Gary David Bouton, Barbara Mancuso Bouton, and Gary Kubicek, New Riders Publishing, copyright 1998, pages 46-49), and Usami (US Patent 5,781,709).

Regarding claim 7: Sakamoto in view of Delabastita and Bouton does not disclose expressly a dot area percentage selection section for selecting a dot area percentage; and dot area percentage control means for controlling a relative value between thresholds constituting the threshold matrixes and a density level of the uniform image in such a manner that monochromatic images of the dot area percentage selected by said dot area percentage selection section can be obtained.

Usami discloses a dot area percentage selection section (figure 1(11(portion)) of Usami) for selecting a dot area percentage (column 6, lines 40-42 of Usami). The image processing method disclosed by Usami is performed by a general color printing system (figure 1(11) and column 4, lines 37-42 of Usami). The dot area percentage selection section is therefore the circuitry and embodied software that performs the step of selecting a dot area percentage by which to vary the color image data (column 6, lines 40-42 of Usami).

Usami further discloses dot area percentage control means (figure 1(11(portion)) of Usami) for controlling a relative value between thresholds constituting the threshold matrices and a density level of the uniform image (column 6, lines 42-50 of Usami) in such a manner that monochromatic images of the dot area percentage selected by said dot area percentage selection section can be obtained (column 6, lines 47-55 of Usami). The dot percentage is set by the color printing system (column 6, lines 40-42 of Usami) which then measures the tristimulus (density) values (column 6, lines 42-46 of Usami) and produces corrective data (column 6, lines 46-50 of Usami) which can then be addressed and used as input data for printing (column 6, lines 50-55 of Usami). The image processing method disclosed by Usami is performed by a general color printing system (figure 1(11) and column 4, lines 37-42 of Usami). The dot area percentage control means is therefore the circuitry and embodied software that performs the step of controlling the relative values between the threshold matrix values and the corresponding density levels.

Sakamoto in view of Delabastita and Bouton is combinable with Usami because they are from the same field of endeavor, namely image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the dot area percentage selection section and dot area percentage control means taught by Usami in order to control the dot area percentage of the images to be output by the image processing system of Sakamoto in view of Delabastita and Bouton. The motivation for doing so would have been to correct the color of the resultant image output (column 4, lines 37-41 and column 6, lines 34-37 of Usami). Therefore, it would

have been obvious to combine Usami with Sakamoto in view of Delabastita and Bouton to obtain the invention as specified in claim 7.

Regarding claim 9: Sakamoto in view of Delabastita does not disclose expressly a handler for controlling a dot area percentage, and said dot area percentage selection section selects the dot area percentage in accordance with an operation of said handler.

Bouton discloses a handler ("amount slider") which variably adjusts image properties, as shown in figure 2.5 on page 48 of Bouton. The handler is clearly shown where the mouse pointer is adjusting the lightness of the image. Two other handlers are shown which can be used to adjust saturation and hue. Said handler, shown in figure 2.5 on page 48 of Bouton, selects the value of the image property in accordance with an operation of said handler, specifically by dragging the amount slider to the desired value (page 48, lines 1-4 of Bouton).

Sakamoto in view of Delabastita is combinable with Bouton because they are from the same field of endeavor, namely image data processing and presentation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to variably adjust the image data properties of the images processed by the apparatus taught by Sakamoto in view of Delabastita, by using the handler and the associated operations performed upon said handler, as taught by Bouton. The motivation for doing so would have been to improve the image quality (page 46, lines 4-6 of Bouton). Therefore, it would have been obvious to combine Bouton with Sakamoto in view of Delabastita.

Sakamoto in view of Delabastita and Bouton does not disclose expressly that said handler controls a dot area percentage; and said dot area percentage selection section selects the dot area percentage in accordance with an operation of said handler.

Usami discloses that said dot area percentage selection section (figure 1(11(portion)) of Usami) selects a dot area percentage by which to vary the color image data (column 6, lines 40-42 of Usami).

Sakamoto in view of Delabastita and Bouton is combinable with Usami because they are from the same field of endeavor, namely image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the handler, taught by Bouton, to control the dot area percentage and have said dot area percentage selection section select said dot area percentage, as taught by Usami, in accordance with the operation of said handler. The motivation for doing so would have been to be able to select a dot area percentage and thus correct the color of the resultant image output (column 4, lines 37-41 and column 6, lines 34-37 of Usami). Therefore, it would have been obvious to combine Usami with Sakamoto in view of Delabastita and Bouton to obtain the invention as specified in claim 9.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takashi Sakamoto, US Patent 5,045,931, 3 September 1991.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
June 25, 2004

THOMAS D.
~~TOMMY~~ LEE
PRIMARY EXAMINER